

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"20050076326"	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/24 19:49
S2	561	718/1.ccls.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:48
S3	7067	"719"/\$.ccls.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:48
S4	1419	virtual near2 operating near system	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:49
S5	2754	virtual near2 ( OS (operating near system) )	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:49
S6	26886	(windows unix) near2 operating near system	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:50
S7	40740	(windows unix) near10 operating near system	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:50
S8	788	S5 and S7	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:51
S9	182	S5 same S7	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:51
S10	130	S5 same S6	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:51
S11	8	S2 and S10	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:18



## EAST Search History

S12	137	(MCMILLAN near JOHN).in.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:57
S13	1153	virtual near (OS (operating near system) )	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:20
S14	1	S4 and S12	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 14:58
S15	91	S2 and S4	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:20
S16	1633	(inject\$3 near10 dll) spy	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:19
S17	1	S15 and S16	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:19
S18	12952	virtual near machine	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:20
S19	13557	virtual near (OS (operating near system) machine)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:21
S20	50	S16 and S19	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:21
S21	17	S7 and S20	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:22
S22	267	S6 same S19	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:22
S23	7	S16 and S22	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:29



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S24	1644	(virtual near model)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:31
S25	2	(amiga inferno) near OS	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:30
S26	2781	virtual near (OS model (operating near system) )	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:32
S27	14	S16 and S26	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/27 15:32
S28	561	718/1.ccls.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 10:39
S29	2781	virtual near (OS model (operating near system) )	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 10:39
S30	40740	(windows unix) near10 operating near system	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 10:40
S31	30	S28 and S29 and S30	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 11:10
S32	7805	VOS	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 11:10
S33	40740	(windows unix) near10 operating near system	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 11:10
S34	7805	VOS	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 11:23
S35	40740	(windows unix) near10 operating near system	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 11:23



## EAST Search History

S36	561	718/1.ccls.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 11:23
S37	8	S34 and S35 and S36	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 11:23
S38	11	S34 and S36	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 11:29
S39	3489	virtual near2 model\$1	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 11:29
S40	25	S36 and S39	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 13:38
S43	216	virtual near machine same (dll inject\$3 spy hook)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 13:41
S45	13	virtual near2 operating near5 system same (dll inject\$3 spy hook)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 13:57
S49	62	virtual near2 machine same (hook (inject\$3 near2 dll ) )	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 14:01
S51	46	operating near system same inject\$3 near2 dll	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 14:20
S52	1	( (virtual near machine) VMM) same inject\$3 near2 dll	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/03/28 14:21




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### 1 [A virtual operating system](#)



Dennis E. Hall, Deborah K. Scherrer, Joseph S. Sventek

 September 1980 **Communications of the ACM**, Volume 23 Issue 9

Publisher: ACM Press

 Full text available: [pdf\(931.85 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Moving to a new system is costly and error-prone. The problem can be reduced through use of a virtual operating system that disentangles computing environments from their underlying operating systems. The authors report on their successful experience in doing this and achieving inter-system uniformity at all three levels of user interface: virtual machine, utilities, and command language.

**Keywords:** command languages, computing environments, functional equivalence of operating systems, moving costs, operating systems, system utilities, user interface, user mobility, virtual machines

### 2 [Technology to enable learning: Creating remotely accessible "virtual networks" on a single PC to teach computer networking and operating systems](#)



Mark Stockman

 October 2003 **Proceedings of the 4th conference on Information technology curriculum CITC4 '03**

Publisher: ACM Press

 Full text available: [pdf\(209.56 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Instruction in the area of computer networking (specifically systems administration) can be cumbersome and ineffective; and is almost always is an expensive prospect when it comes to instructional and lab facilities. Problems arise both in the classroom and the lab when trying to recreate a true computing environment. Two solutions spelled out in this paper, virtual machines and remoting technology, have been implemented to help solve these problems encountered in the delivery of instruction.

**Keywords:** networking lab, remote administration, remoting technology, systems administration instruction, virtual machines, virtual network

3

### [Experiences teaching operating systems using virtual platforms and Linux](#)







Jason Nieh, Chris Vaill

April 2006 **ACM SIGOPS Operating Systems Review**, Volume 40 Issue 2**Publisher:** ACM PressFull text available: [pdf\(125.67 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Operating system courses teach students much more when they provide hands-on kernel-level project experience with a real operating system. However, enabling a large class of students to do kernel development can be difficult. To address this problem, we created a virtual kernel development environment in which operating systems can be developed, debugged, and rebooted in a shared computer facility without affecting other users. Using virtual machines and remote display technology, our virtual ke ...

**Keywords:** computer science education, open-source software, operating systems, virtual machines, virtualization

4 Experiences teaching operating systems using virtual platforms and linux

Jason Nieh, Chris Vaill

February 2005 **ACM SIGCSE Bulletin , Proceedings of the 36th SIGCSE technical symposium on Computer science education SIGCSE '05**, Volume 37 Issue 1**Publisher:** ACM PressFull text available: [pdf\(111.45 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Operating system courses teach students much more when they provide hands-on kernel-level project experience with a real operating system. However, enabling a large class of students to do kernel development can be difficult. To address this problem, we created a virtual kernel development environment in which operating systems can be developed, debugged, and rebooted in a shared computer facility without affecting other users. Using virtual machines and remote display technology, our virtual ke ...

**Keywords:** computer science education, open-source software, operating systems, virtual machines, virtualization

5 Virtual memory and backing storage management in multiprocessor operating systems using object-oriented design techniques

V. F. Russo, R. H. Campbell

September 1989 **ACM SIGPLAN Notices , Conference proceedings on Object-oriented programming systems, languages and applications OOPSLA '89**, Volume 24 Issue 10**Publisher:** ACM PressFull text available: [pdf\(1.19 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


The Choices operating system architecture [3, 4, 15] uses class hierarchies and object-oriented programming to facilitate the construction of customized operating systems for shared memory and networked multiprocessors. The software is being used in the Tapestry Parallel Computing Laboratory at the University of Illinois to study the performance of algorithms, mechanisms, and policies for parallel systems. This paper describes the architectural design and class hierarchy of ...

6 Teaching concepts of virtual memory with the Moses2 microcomputer operating system environment simulator

Robert E. England

June 2005 **Journal of Computing Sciences in Colleges**, Volume 20 Issue 6**Publisher:** Consortium for Computing Sciences in Colleges




Full text available:  [pdf\(135.60 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A clear understanding of the concepts of virtual memory is important to any student of computer science or professional computer scientist, especially those who work in system administration or program at the systems level. Virtual memory is now the standard paradigm for solving the classic trade-off between expensive but fast main memory and the cheaper yet much slower hard disk drive space. This paper discusses the design and implementation of the virtual memory simulation facility of Moses2, a ...

## 7 [Generic virtual memory management for operating system kernels](#)


 E. Abrossimov, M. Rozier, M. Shapiro  
November 1989 **ACM SIGOPS Operating Systems Review , Proceedings of the twelfth ACM symposium on Operating systems principles SOSP '89**, Volume 23  
Issue 5

**Publisher:** ACM Press

Full text available:  [pdf\(1.44 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We discuss the rationale and design of a Generic Memory management Interface, for a family of scalable operating systems. It consists of a general interface for managing virtual memory, independently of the underlying hardware architecture (e.g. paged versus segmented memory), and independently of the operating system kernel in which it is to be integrated. In particular, this interface provides abstractions for support of a single, consistent cache for both mapped objects and explicit I/O, ...

## 8 [Teaching operating systems in a virtual machine environment](#)

 John L. Donaldson  
February 1987 **ACM SIGCSE Bulletin , Proceedings of the eighteenth SIGCSE technical symposium on Computer science education SIGCSE '87**, Volume 19 Issue 1

**Publisher:** ACM Press

Full text available:  [pdf\(559.60 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

## 9 [Migration of processes, files, and virtual devices in the MDX operating system](#)

 Harald Schrimpf  
April 1995 **ACM SIGOPS Operating Systems Review**, Volume 29 Issue 2

**Publisher:** ACM Press

Full text available:  [pdf\(983.96 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Load management in distributed systems is usually focused on balancing process execution and communication load. Stress on storage media and I/O-devices is considered only indirectly or disregarded. For I/O-intensive processes this imposes severe restrictions on balancing algorithms: processes have to be placed relative to fixed allocated resources. Therefore, beyond process migration, there is a need for a migration of all operating system objects, like files, pipes, timers, virtual terminals, ...

## 10 [The design and implementation of a virtual machine operating system using a Virtual Access Method](#)

 James H. March  
March 1973 **Proceedings of the workshop on virtual computer systems**

**Publisher:** ACM Press

Full text available:  [pdf\(305.39 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

In the autumn of 1969, we decided to try a new approach to the design of a virtual machine operating system. Until that time, most installations using Virtual Machine




Monitors merely ran operating systems that already existed for "stand-alone" use. Few, if any, installations had attempted to design and create an operating system that took advantage of its running environment. The Virtual Machine Monitor we were using was a highly modified version of CP-67 which was designed to o ...

11 The virtual machine and user process model used in mooses2: a microcomputer operating system environment simulator

Robert E. England

December 2001 **Journal of Computing Sciences in Colleges**, Volume 17 Issue 2

**Publisher:** Consortium for Computing Sciences in Colleges

Full text available:  [pdf\(39.30 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper discusses the design and development of two primary components of Mooses2, a virtual computing environment for use in undergraduate operating systems courses. Mooses2 is an entirely original work produced and refined by the author over the last twelve years in conjunction with teaching senior level operating systems courses. In the Mooses2 environment, students run and test original kernel emulator programs while they develop these programs as course projects. The features of the system ...

12 Virtual machines: ReVirt: enabling intrusion analysis through virtual-machine logging and replay

George W. Dunlap, Samuel T. King, Sukru Cinar, Murtaza A. Basrai, Peter M. Chen

December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue SI

**Publisher:** ACM Press

Full text available:  [pdf\(1.56 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)


Current system loggers have two problems: they depend on the integrity of the operating system being logged, and they do not save sufficient information to replay and analyze attacks that include any non-deterministic events. ReVirt removes the dependency on the target operating system by moving it into a virtual machine and logging below the virtual machine. This allows ReVirt to replay the system's execution before, during, and after an intruder compromises the system, even if the intruder rep ...

13 Cellular Disco: resource management using virtual clusters on shared-memory multiprocessors

Kinshuk Govil, Dan Teodosiu, Yongqiang Huang, Mendel Rosenblum

December 1999 **ACM SIGOPS Operating Systems Review , Proceedings of the seventeenth ACM symposium on Operating systems principles SOSP '99**, Volume 33 Issue 5

**Publisher:** ACM Press

Full text available:  [pdf\(1.93 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Despite the fact that large-scale shared-memory multiprocessors have been commercially available for several years, system software that fully utilizes all their features is still not available, mostly due to the complexity and cost of making the required changes to the operating system. A recently proposed approach, called Disco, substantially reduces this development cost by using a virtual machine monitor that leverages the existing operating system technology. In this paper we present a syste ...

14 Disco: running commodity operating systems on scalable multiprocessors


Edouard Bugnion, Scott Devine, Mendel Rosenblum

October 1997 **ACM SIGOPS Operating Systems Review , Proceedings of the sixteenth ACM symposium on Operating systems principles SOSP '97**, Volume 31 Issue 5

5



**Publisher:** ACM Press

Full text available:  [pdf\(2.30 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**15** Disco: running commodity operating systems on scalable multiprocessors



Edouard Bugnion, Scott Devine, Kinshuk Govil, Mendel Rosenblum

November 1997 **ACM Transactions on Computer Systems (TOCS)**, Volume 15 Issue 4

**Publisher:** ACM Press

Full text available:  [pdf\(400.76 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

In this article we examine the problem of extending modern operating systems to run efficiently on large-scale shared-memory multiprocessors without a large implementation effort. Our approach brings back an idea popular in the 1970s: virtual machine monitors. We use virtual machines to run multiple commodity operating systems on a scalable multiprocessor. This solution addresses many of the challenges facing the system software for these machines. We demonstrate our approach with a prototy ...

**Keywords:** scalable multiprocessors, virtual machines

**16** Firmware/hardware support for operating systems: principles and selected history



Gary H. Sockut

December 1975 **ACM SIGMICRO Newsletter**, Volume 6 Issue 4

**Publisher:** ACM Press

Full text available:  [pdf\(691.28 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#)

Firmware/hardware support for operating systems is described briefly, and proposed criteria for determining which operating system functions are the best candidates for firmware/hardware implementation are listed. A selected history of the area is presented in three sections: past and current research in support for virtual machines and two sections on past and current research in support for non -- virtual machine operating system functions.

**17** Structuring operating systems literature for the graduate course



October 1982 **ACM SIGOPS Operating Systems Review**, Volume 16 Issue 4

**Publisher:** ACM Press

Full text available:  [pdf\(904.20 KB\)](#)

Additional Information: [full citation](#), [citations](#)

**18** Surpassing the TLB performance of superpages with less operating system support



Madhusudhan Talluri, Mark D. Hill

November 1994 **ACM SIGPLAN Notices , ACM SIGOPS Operating Systems Review , Proceedings of the sixth international conference on Architectural support for programming languages and operating systems ASPLOS-VI**, Volume 29 , 28 Issue 11 , 5

**Publisher:** ACM Press

Full text available:  [pdf\(1.50 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Many commercial microprocessor architectures have added translation lookaside buffer (TLB) support for superpages. Superpages differ from segments because their size must be a power of two multiple of the base page size and they must be aligned in both virtual and physical address spaces. Very large superpages (e.g., 1MB) are clearly useful for mapping special structures, such as kernel data or frame buffers. This paper considers the



architectural and opera ...

19 Operating systems: Run-time dynamic linking for reprogramming wireless sensor networks

Adam Dunkels, Niclas Finne, Joakim Eriksson, Thiemo Voigt

October 2006 **Proceedings of the 4th international conference on Embedded networked sensor systems SenSys '06**

**Publisher:** ACM Press

Full text available:  pdf(240.28 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

From experience with wireless sensor networks it has become apparent that dynamic reprogramming of the sensor nodes is a useful feature. The resource constraints in terms of energy, memory, and processing power make sensor network reprogramming a challenging task. Many different mechanisms for reprogramming sensor nodes have been developed ranging from full image replacement to virtual machines. We have implemented an in-situ run-time dynamic linker and loader that use the standard ELF object file ...


**Keywords:** dynamic linking, embedded systems, operating systems, virtual machines, wireless sensor networks

20 Operating system principles

Per Brinch Hansen

January 1973 Book

**Publisher:** Prentice-Hall, Inc.

Full text available:  pdf(16.81 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

**From the Preface**

**MAIN GOAL**

This book tries to give students of computer science and professional programmers a general understanding of *operating systems*--the programs that enable people to share computers efficiently.





To make the sharing of a computer tolerable, an operating system must enforce certain rules of behavior on all its users. One would therefore expect the designers of operating systems to do their utmost to make them as s ...

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## 21 [Simulation and architecture evaluation: Orion: a power-performance simulator for interconnection networks](#)

Hang-Sheng Wang, Xinping Zhu, Li-Shiuan Peh, Sharad Malik

 November 2002 **Proceedings of the 35th annual ACM/IEEE international symposium on Microarchitecture MICRO 35**

Publisher: IEEE Computer Society Press

Full text available:

pdf (1.14 MB)


 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)
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With the prevalence of server blades and systems-on-a-chip (SoCs), interconnection networks are becoming an important part of the microprocessor landscape. However, there is limited tool support available for their design. While performance simulators have been built that enable performance estimation while varying network parameters, these cover only one metric of interest in modern designs. System power consumption is increasingly becoming equally, if not more important than performance. It is ...

## 22 [Fast detection of communication patterns in distributed executions](#)

Thomas Kunz, Michiel F. H. Seuren

 November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research CASCON '97**

Publisher: IBM Press

Full text available:

pdf (4.21 MB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

## 23 [A hazard analysis of human factors in safety-critical systems engineering](#)

Les Chambers

 April 2006 **Proceedings of the 10th Australian workshop on Safety critical systems and software - Volume 55 SCS '05**

Publisher: Australian Computer Society, Inc.

Full text available:

pdf (101.34 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



Safety incident studies often cite human factors as a major cause of accidents. At Bhopal in 1984 human error - the failure to follow safe operating procedures - instigated the deaths of thousands of people from cyanide poisoning. In this case, human factors introduced a common cause fault that disabled four separate safety measures designed to prevent cyanide gas from venting to the atmosphere. From this and other case studies I have taken the view that the competence and motivation of people re ...

**Keywords:** EN50128, IEC 61508, human factors, safety-critical systems engineering

**24** Minos: Control Data Attack Prevention Orthogonal to Memory Model

Jedidiah R. Crandall, Frederic T. Chong

December 2004 **Proceedings of the 37th annual IEEE/ACM International Symposium on Microarchitecture MICRO 37**

**Publisher:** IEEE Computer Society

Full text available:  pdf(255.53 KB) Additional Information: [full citation](#), [abstract](#), [citations](#)

We introduce Minos, a microarchitecture that implements Biba's low-water-mark integrity policy on individual words of data. Minos stops attacks that corrupt control data to hijack program control flow but is orthogonal to the memory model. Control data is any data which is loaded into the program counter on control flow transfer, or any data used to calculate such data. The key is that Minos tracks the integrity of all data, but protects control flow by checking this integrity when a program use ...

**25** Technical papers: software design: DADO: enhancing middleware to support crosscutting features in distributed, heterogeneous systems

Eric Wohlstadter, Stoney Jackson, Premkumar Devanbu


May 2003 **Proceedings of the 25th International Conference on Software Engineering ICSE '03**

**Publisher:** IEEE Computer Society

Full text available:  pdf(1.56 MB)  Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)  
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Some "non-" or "extra-functional" features, such as reliability, security, and tracing, defy modularization mechanisms in programming languages. This makes such features hard to design, implement, and maintain. Implementing such features within a single platform, using a single language, is hard enough. With distributed, heterogeneous (DH) systems, these features induce complex implementations which cross-cut different languages, OSs, and hardware platforms, while still needing to share data and ...

**26** Self-organizing systems: Ad hoc extensibility and access control

 Ulfar Erlingsson, John MacCormick


July 2006 **ACM SIGOPS Operating Systems Review**, Volume 40 Issue 3

**Publisher:** ACM Press

Full text available:  pdf(200.54 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

General-purpose, commercial software platforms are increasingly used as system building blocks, even for dependable systems. One reason for their generality, usefulness, and popular adoption is that these software platforms can evolve through *ad hoc extensions*: behavior tweaks outside the scope of supported platform interfaces. Unfortunately, such use of internal platform implementation details is fundamentally incompatible with security and reliability. Even so, platforms that exclude ad ...

**27** Vertical profiling: understanding the behavior of object-oriented applications


 Matthias Hauswirth, Peter F. Sweeney, Amer Diwan, Michael Hind

October 2004 **ACM SIGPLAN Notices , Proceedings of the 19th annual ACM SIGPLAN**



**conference on Object-oriented programming, systems, languages, and applications OOPSLA '04**, Volume 39 Issue 10

**Publisher:** ACM Press

Full text available:  pdf(1.16 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Object-oriented programming languages provide a rich set of features that provide significant software engineering benefits. The increased productivity provided by these features comes at a justifiable cost in a more sophisticated runtime system whose responsibility is to implement these features efficiently. However, the virtualization introduced by this sophistication provides a significant challenge to understanding complete system performance, not found in traditionally compiled languages ...

**Keywords:** hardware performance monitors, perturbation, software performance monitors, vertical profiling, whole-system analysis

**28** Main track: Securing the deluge Network programming system



Prabal K. Dutta, Jonathan W. Hui, David C. Chu, David E. Culler

April 2006 **Proceedings of the fifth international conference on Information processing in sensor networks IPSN '06**

**Publisher:** ACM Press

Full text available:  pdf(331.36 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A number of multi-hop, wireless, network programming systems have emerged for sensor network retasking but none of these systems support a cryptographically-strong, public-key-based system for source authentication and integrity verification. The traditional technique for authenticating a program binary, namely a digital signature of the program hash, is poorly suited to resource-constrained sensor nodes. Our solution to the secure programming problem leverages authenticated streams, is consistent ...

**Keywords:** authenticated broadcast, dissemination protocols, network programming, security, wireless sensor networks

**29** JAsCo: an aspect-oriented approach tailored for component based software development



Davy Suvée, Wim Vanderperren, Viviane Jonckers

March 2003 **Proceedings of the 2nd international conference on Aspect-oriented software development AOSD '03**

**Publisher:** ACM Press

Full text available:  pdf(991.48 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper we introduce a novel aspect oriented implementation language, called JAsCo. JAsCo is tailored for component based development and the Java Beans component model in particular. The JAsCo language introduces two concepts: aspect beans and connectors. An aspect bean describes behavior that interferes with the execution of a component by using a special kind of inner class, called a hook. The specification of a hook is context independent and therefore reusable. A connector on the other ...

**30** Security issues for wireless ATM networks



Danai Patiyoot

January 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue 1

**Publisher:** ACM Press



Full text available:  [pdf\(1.75 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

To be able to fulfil the need of user in wireless ATM, the system has to acquire features. One of the system features for the wireless ATM is functionality especially the security aspect. There is so far little, if not none, security consideration in the developing of wireless ATM standard. Therefore a wide range of features in security functions is in consideration. This paper tried to define the features of security in wireless ATM networks considering it features from existing fixed ATM network ...


**Keywords:** security, wireless ATM

31 [L2imbo: a distributed systems platform for mobile computing](#)

Nigel Davies, Adrian Friday, Stephen P. Wade, Gordon S. Blair


August 1998 **Mobile Networks and Applications**, Volume 3 Issue 2

**Publisher:** Kluwer Academic Publishers

Full text available:  [pdf\(403.96 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)


Mobile computing environments increasingly consist of a range of supporting technologies offering a diverse set of capabilities to applications and end-systems. Such environments are characterised by sudden and dramatic changes in the quality-of-service (QoS) available to applications and users. Recent work has shown that distributed systems platforms can assist applications to take advantage of these changes in QoS and, more specifically, facilitate applications to adapt to their environment ...

32 [Conjunction as composition](#)

 Pamela Zave, Michael Jackson

October 1993 **ACM Transactions on Software Engineering and Methodology (TOSEM)**, Volume 2 Issue 4


**Publisher:** ACM Press

Full text available:  [pdf\(2.17 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Partial specifications written in many different specification languages can be composed if they are all given semantics in the same domain, or alternatively, all translated into a common style of predicate logic. The common semantic domain must be very general, the particular semantics assigned to each specification language must be conducive to composition, and there must be some means of communication that enables specifications to build on one another. The criteria for success are that ...


**Keywords:** compositional specification, multiparadigm specification, practical specification

33 [Platforms: TOSSIM: accurate and scalable simulation of entire tinyOS applications](#)

 Philip Levis, Nelson Lee, Matt Welsh, David Culler

November 2003 **Proceedings of the 1st international conference on Embedded networked sensor systems SenSys '03**

**Publisher:** ACM Press

Full text available:  [pdf\(429.79 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Accurate and scalable simulation has historically been a key enabling factor for systems research. We present TOSSIM, a simulator for TinyOS wireless sensor networks. By exploiting the sensor network domain and TinyOS's design, TOSSIM can capture network behavior at a high fidelity while scaling to thousands of nodes. By using a probabilistic bit error model for the network, TOSSIM remains simple and efficient, but expressive enough



to capture a wide range of network interactions. Using TOSSIM, ...

**Keywords:** TOSSIM, sensor networks, tinyOS

### 34 Forensics: Principles-driven forensic analysis



Sean Peisert, Sidney Karin, Matt Bishop, Keith Marzullo

September 2005 **Proceedings of the 2005 workshop on New security paradigms NSPW '05**

**Publisher:** ACM Press

Full text available:  pdf(3.06 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

It is possible to enhance our understanding of what has happened on a computer system by using forensic techniques that do not require prediction of the nature of the attack, the skill of the attacker, or the details of the system resources or objects affected. These techniques address five fundamental principles of computer forensics. These principles include recording data about the entire operating system, particularly user space events and environments, and interpreting events at different I ...

**Keywords:** abstraction shortcuts, auditing, compilers, covert channels, forensic analysis, forensic principles, forensics, logging, multi-resolution forensics, race conditions, virtual machine introspection


### 35 Simulation: A system for simulation, emulation, and deployment of heterogeneous sensor networks



Lewis Girod, Thanos Stathopoulos, Nithya Ramanathan, Jeremy Elson, Deborah Estrin, Eric Osterweil, Tom Schoellhammer

November 2004 **Proceedings of the 2nd international conference on Embedded networked sensor systems SenSys '04**

**Publisher:** ACM Press

Full text available:  pdf(345.48 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Recently deployed Wireless Sensor Network systems (WSNs) are increasingly following *heterogeneous* designs, incorporating a mixture of elements with widely varying capabilities. The development and deployment of WSNs rides heavily on the availability of simulation, emulation, visualization and analysis support. In this work, we develop tools specifically to support *heterogeneous* systems, as well as to support the measurement and visualization of *operational* ...

**Keywords:** EmStar, TinyOS, real code simulation, sensor networks

### 36 Incommunicado: efficient communication for isolates



Krzysztof Palacz, Jan Vitek, Grzegorz Czajkowski, Laurent Daynas

November 2002 **ACM SIGPLAN Notices , Proceedings of the 17th ACM SIGPLAN conference on Object-oriented programming, systems, languages, and applications OOPSLA '02**, Volume 37 Issue 11

**Publisher:** ACM Press

Full text available:  pdf(386.23 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Executing computations in a single instance of safe language virtual machine can improve performance and overall platform scalability. It also poses various challenges. One of them is providing a fast inter-application communication mechanism. In addition to being efficient, such a mechanism should not violate any functional and non-functional properties of its environment, and should also support enforcement of application-specific



security policies. This paper explores the design and implement ...

**Keywords:** application isolation, inter-application communication

37 End-to-end security: WormTerminator: an effective containment of unknown and polymorphic fast spreading worms

Songqing Chen, Xinyuan Wang, Lei Liu, Xinwen Zhang

December 2006 **Proceedings of the 2006 ACM/IEEE symposium on Architecture for networking and communications systems ANCS '06**

**Publisher:** ACM Press

Full text available:  pdf(607.23 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The fast spreading worm is becoming one of the most serious threats to today's networked information systems. A fast spreading worm could infect hundreds of thousands of hosts within a few minutes. In order to stop a fast spreading worm, we need the capability to detect and contain worms automatically in real-time. While signature based worm detection and containment are effective in detecting and containing known worms, they are inherently ineffective against previously unknown worms and polymo ...

**Keywords:** polymorphic worms, virtual machine, worm containment, wormterminator, zero-day worms


38 An overview of the BlueGene/L Supercomputer

NR Adiga, G Almasi, GS Almasi, Y Aridor, R Barik, D Beece, R Bellofatto, G Bhanot, R Bickford, M Blumrich, AA Bright, J Brunheroto, C Caşcaval, J Castañós, W Chan, L Ceze, P Coteus, S Chatterjee, D Chen, G Chiu, TM Cipolla, P Crumley, KM Desai, A Deutsch, T Domany, MB Dombrowa, W Donath, M Eleftheriou, C Erway, J Esch, B Fitch, J Gagliano, A Gara, R Garg, R Germain, ME Giampapa, B Gopalsamy, J Gunnels, M Gupta, F Gustavson, S Hall, RA Haring, D Heidel, P Heidelberger, LM Herger, D Hoenicke, RD Jackson, T Jamal-Eddine, GV Kopcsay, E Krevat, MP Kurhekar, AP Lanzetta, D Lieber, LK Liu, M Lu, M Mendell, A Misra, Y Moatti, L Mok, JE Moreira, BJ Nathanson, M Newton, M Ohmacht, A Oliner, V Pandit, RB Pudota, R Rand, R Regan, B Rubin, A Ruehli, S Rus, RK Sahoo, A Sanomiya, E Schenfeld, M Sharma, E Shmueli, S Singh, P Song, V Srinivasan, BD Steinmacher-Burow, K Strauss, C Surovic, R Swetz, T Takken, RB Tremaine, M Tsao, AR Umamaheshwaran, P Verma, P Vranas, TJC Ward, M Wazlowski, W Barrett, C Engel, B Drehmel, B Hilgart, D Hill, F Kasemkhani, D Krolak, CT Li, T Liebsch, J Marcella, A Muff, A Okomo, M Rouse, A Schram, M Tubbs, G Ulsh, C Wait, J Wittrup, M Bae, K Dockser, L Kissel, MK Seager, JS Vetter, K Yates

November 2002 **Proceedings of the 2002 ACM/IEEE conference on Supercomputing**

**Supercomputing '02**

**Publisher:** IEEE Computer Society Press

Full text available:  pdf(357.61 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper gives an overview of the BlueGene/L Supercomputer. This is a jointly funded research partnership between IBM and the Lawrence Livermore National Laboratory as part of the United States Department of Energy ASCI Advanced Architecture Research Program. Application performance and scaling studies have recently been initiated with partners at a number of academic and government institutions, including the San Diego Supercomputer Center and the California Institute of Technology. This mass ...

39 Systems session 2: distributed systems: DANS: decentralized, autonomous, and networkwide service delivery and multimedia workflow processing

Gisik Kwon, K. Selçuk Candan

October 2006 **Proceedings of the 14th annual ACM international conference on Multimedia MULTIMEDIA '06**



**Publisher:** ACM Press

Full text available:  [pdf\(290.32 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Fundamental challenges in designing environments with media-rich ambient services involves not only the development of appropriate sensing technologies, but as importantly, the implementation of a distributed media processing system which can process, integrate, and leverage the sensed data in real time to provide the various services. In recent years, a great deal of progress has been made in media service workflow processing systems. In most existing solutions, however, the workflow nodes, whi ...


**Keywords:** media processing workflows, peer-to-peer computing, stream workflow processing

**40** [Mobile and Cooperative Systems: Information sharing and security in dynamic coalitions](#)

Charles E. Phillips, T.C. Ting, Steven A. Demurjian

June 2002 **Proceedings of the seventh ACM symposium on Access control models and technologies SACMAT '02**

**Publisher:** ACM Press

Full text available:  [pdf\(1.68 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Today, information sharing is critical to almost every institution. There is no more critical need for information sharing than during an international crisis, when international coalitions dynamically form. In the event of a crisis, whether it is humanitarian relief, natural disaster, combat operations, or terrorist incidents, international coalitions have an immediate need for information. These coalitions are formed with international cooperation, where each participating country offers whate ...

**Keywords:** access control, distributed systems, dynamic coalitions, information security

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